CONTENTS OF VOLUME 50

NUMBER 1

Effects of Constant and Fluctuating Temperatures on Reproductive Performance of a Desert Pupfish, *Cyprinodon n. nevadensis* . . . . . *Joy B. Shrode and Shelby D. Gerking* 1

Control of Protein Synthesis in Temperature Acclimation. I. Characterization of Polypeptide Elongation Factor 1 of Toadfish Liver *Patricia W. Plant, Jennifer B. K. Nielsen, and Audrey E. V. Haschemeyer* 11

Control of Protein Synthesis in Temperature Acclimation. II. Correlation of Elongation Factor 1 Activity with Elongation Rate in Vivo *Jennifer B. K. Nielsen, Patricia W. Plant, and Audrey E. V. Haschemeyer* 22

Metabolic Rate and Body Temperature in Singing Katydids *E. Don Stevens and R. K. Josephson* 31

Respiration, Metabolism, and Heat Exchange of Euthermic and Torpid Poorwills and Hummingbirds . . . . . *Philip C. Withers* 43

A Stochastic Dual-Limit Hypothesis for Behavioral Thermoregulation in Lizards *Billy J. Barber and Eugene C. Crawford, Jr.* 53

Metabolic Responses of a Fossorial Rodent (*Spalax ehrenbergi*) to Simulated Burrow Conditions . . . . . *Ran Arieli, Amos Ar, and Amiram Shkolnik* 61

NUMBER 2

The Relationship between Body Size and Blood Oxygen Affinity in Snakes *F. Harvey Pough* 77

Physiological Adaptations of Aquatic Newts (*Notophthalmus viridescens*) to a Terrestrial Environment . . . . . *Patricia J. Walters and Lewis Greenwald* 88

Energetics for Activity in the Diamondback Water Snake, *Natrix rhombifera* *Ronald K. Gratz and Victor H. Hutchison* 99

Metabolic and Behavioral Responses to Fasting in the White-crowned Sparrow (*Zonotrichia leucophrys gambelii*) . . . . . *Ellen D. Ketterson and James R. King* 115

Body Temperature in Wisconsin *Peromyscus leucopus:* A Reexamination *Richard W. Hill* 130

The Regulatory Role of Muscle Pyruvate Kinase in Carbohydrate Metabolism of Invertebrates. A Comparative Study in Catalytic Properties of Enzymes Isolated from *Tubifex tubifex* (Oligochaeta) and *Tenebrio molitor* (Coleoptera) . . . *Klaus-Hubert Hoffmann* 142

NUMBER 3

Heat-Energy-Budget Analysis and Heat Transfer in the Largemouth Blackbass (*Micropterus salmoides*) . . . . . *Dale J. Erskine and James R. Spotila* 157

Constant Light. Effects on the Circadian Locomotor Rhythm in the House Sparrow *Sue Binkley* 170

Energetics of Brachiation versus Walking: A Comparison of a Suspended and an Inverted Pendulum Mechanism . . . . . *Polly E. Parsons and C. Richard Taylor* 182

Aerobic and Anaerobic Metabolism during Activity in the Salamander *Ambystoma tigrinum* *Victor H. Hutchison, I. Douglas Turney, and Ronald K. Gratz* 189

A Comparison of the Water-Balance Response in Five Species of Plethodontid Salamanders *Patricia Stocking Brown, Sharon A. Hastings, and B. E. Frye* 203

The Function of Torpor in Hummingbirds *F. Reed Hainsworth, Brian G. Collins, and Larry L. Wolf* 215

Effects of Normoxic Prenatal Low Pressure on Gestation and Development in *Mesocricetus auratus* . . . . . *Gayle H. Gross* 223

Seasonal Oxygen Metabolism and Cutaneous Osmoregulation in the California Newt, *Taricha torosa* . . . . . *Henry J. Harlow* 231

NUMBER 4

Nutritional Aspects of Oogenesis in the Flies *Phormia regina* and *Sarcophaga bullata*
Carol Pappas and G. Fraenkel 237

The Circadian Component in the Photoperiodic Mechanism of the House Sparrow, *Passer domesticus* . . . *Donald S. Farner, Richard S. Donham, Robert A. Lewis, Philip W. Mattocks, Jr., Thomas R. Darden, and Jan P. Smith* 247

Humidity in the Avian Nest and Egg Water Loss during Incubation
H. Rahn, R. A. Ackerman, and C. V. Paganelli 269

Responses to Dehydration in Native Fat-tailed Awassi and Imported German Mutton Merino Sheep . . . . . *A. Allan Degen* 284

Body Growth in Sixteen Rodent Species and Subspecies Maintained in Laboratory Colonies
Peter Morrison, Robert Dieterich, and Diane Preston 294

In Vitro Cardiac Performance of the Big Brown Bat, *Eptesicus fuscus*, at Normothermic and Hibernating Temperatures . . . . . *Brian W. Harris and Frederick K. Hilton* 311

Cuticular Permeability and Epicuticular Lipid Composition in Two Arizona Vejovid Scorpions . . . . . *Eric C. Toolson and Neil F. Hadley* 323

How Rats Economize—Energy Loss in Starvation . . . . . *Klaas Westerterp* 331

New Books in Physiological Zoology
Avian Physiology, edited by P. D. Sturkie—*David R. Jones and Nigel H. West* . . . 363

Index to Volume 50 365

INDEX TO VOLUME 50

Ackerman, R. A., 269
Aerobic and Anaerobic Metabolism during Activity in the Salamander *Ambystoma tigrinum*, 189
Ar, Amos, 61
Arieli, Ran, 61

Barber, Billy J., 53
Binkley, Sue, 170
Body Growth in Sixteen Rodent Species and Subspecies Maintained in Laboratory Colonies, 294
Body Temperature in Wisconsin *Peromyscus leucopus:* A Reexamination, 130
Brown, Patricia Stocking, 203

Circadian Component in the Photoperiodic Mechanism of the House Sparrow, *Passer domesticus*, The, 247
Collins, Brian G., 215
Comparison of the Water-Balance Response in Five Species of Plethodontid Salamanders, A, 203
Constant Light: Effects on the Circadian Locomotor Rhythm in the House Sparrow, 170
Control of Protein Synthesis in Temperature Acclimation. I. Characterization of Polypeptide Elongation Factor 1 of Toadfish Liver, 11
Control of Protein Synthesis in Temperature Acclimation. II. Correlation of Elongation Factor 1 Activity with Elongation Rate in Vivo, 22
Crawford, Eugene C., Jr., 53
Cuticular Permeability and Epicuticular Lipid Composition in Two Arizona Vejovid Scorpions, 323

Darden, Thomas R., 247
Degen, A. Allan, 284
Dieterich, Robert, 294
Donham, Richard S., 247

Effects of Constant and Fluctuating Temperatures on Reproductive Performance of a Desert Pupfish, *Cyprinodon n. nevadensis*, 1
Effects of Normoxic Prenatal Low Pressure on Gestation and Development in *Mesocricetus auratus*, 223
Energetics for Activity in the Diamondback Water Snake, *Natrix rhombifera*, 99
Energetics of Brachiation versus Walking: A Comparison of a Suspended and an Inverted Pendulum Mechanism, 182
Erskine, Dale J., 157

Farner, Donald S., 247
Fraenkel, G., 237
Frye, B. E., 203
Function of Torpor in Hummingbirds, The, 215

Gerking, Shelby D., 1
Gratz, Ronald K., 99, 189
Greenwald, Lewis, 88
Gross, Gayle H., 223

Hadley, Neil F., 323
Hainsworth, F. Reed, 215
Harlow, Henry J., 231
Harris, Brian W., 311
Haschemeyer, Audrey E. V., 11, 22
Hastings, Sharon A., 203
Heat-Energy-Budget Analysis and Heat Transfer in the Largemouth Blackbass (*Micropterus salmoides*), 157
Hill, Richard W., 130
Hilton, Frederick K., 311
Hoffmann, Klaus-Hubert, 142
How Rats Economize—Energy Loss in Starvation, 331
Humidity in the Avian Nest and Egg Water Loss during Incubation, 269
Hutchison, Victor H., 99, 189

In Vitro Cardiac Performance of the Big Brown Bat, *Eptesicus fuscus*, at Normothermic and Hibernating Temperatures, 311

Jones, David R., 363
Josephson, R. K., 31

Ketterson, Ellen D., 115
King, James R., 115

Lewis, Robert A., 247

Mattocks, Philip W., Jr., 247
Metabolic and Behavioral Responses to Fasting in the White-crowned Sparrow (*Zonotrichia leucophrys gambelii*), 115
Metabolic Rate and Body Temperature in Singing Katydids, 31
Metabolic Responses of a Fossorial Rodent (*Spalax ehrenbergi*) to Simulated Burrow Conditions, 61
Morrison, Peter, 294

New Books in Physiological Zoology
P. D. Sturkie, *Avian Physiology*, 363
Nielsen, Jennifer B. K., 11, 22
Nutritional Aspects of Oogenesis in the Flies *Phormia regina* and *Sarcophaga bullata*, 237

PAGANELLI, C. V., 269
PAPPAS, CAROL, 237
PARSONS, POLLY E., 181
Physiological Adaptations of Aquatic Newts (*Notophthalmus viridescens*) to a Terrestrial Environment, 88
PLANT, PATRICIA W., 11, 22
POUGH, F. HARVEY, 77
PRESTON, DIANE, 294

RAHN, H., 269
Regulatory Role of Muscle Pyruvate Kinase in Carbohydrate Metabolism of Invertebrates: A Comparative Study in Catalytic Properties of Enzymes Isolated from *Tubifex tubifex* (Oligochaeta) and *Tenebrio molitor* (Coleoptera), The, 142
Relationship between Body Size and Blood Oxygen Affinity in Snakes, The, 77
Respiration, Metabolism, and Heat Exchange of Euthermic and Torpid Poorwills and Hummingbirds, 43
Responses to Dehydration in Native Fat-tailed Awassi and Imported German Mutton Merino Sheep, 284

Seasonal Oxygen Metabolism and Cutaneous Osmoregulation in the California Newt, *Taricha torosa*, 231
SHKOLNIK, AMIRAM, 61
SHRODE, JOY B., 1
SMITH, JAN P., 247
SPOTILA, JAMES R., 157
STEVENS, E. DON, 31
Stochastic Dual-Limit Hypothesis for Behavioral Thermoregulation in Lizards, A, 53

TAYLOR, C. RICHARD, 18
TOOLSON, ERIC C., 323
TURNEY, L. DOUGLAS, 189

WALTERS, PATRICIA J., 88
WEST, NIGEL H., 363
WESTERTERP, KLAAS, 331
WITHERS, PHILIP C., 43
WOLF, LARRY L., 215